KEY TO ANNOTATIONS AND HIGHLIGHT COLORS

No annotation	The current JLCAR Initial Proposal dated 1/08/2008
Yellow	Changes needing future review by WQSAC
Blue	Changes previously reviewed by WQSAC
Green	Changes on the agenda for this WQSAC meeting

ANNOTATED DRAFT SURFACE WATER QUALITY RULES

This document contains annotations to the draft Surface Water Quality Rules. The annotations consist of comment boxes that record comments on the draft and document reasons for proposed draft language. Where appropriate, a summary DES response to comments has been placed in the comment box.

Proposed additions to rule language are in bold.

Proposed deletions are in strikeout.

The purpose of this annotated version of the rules is to track changes and comments during deliberations of the Water Quality Standards Advisory Committee in Spring/ Summer 2008.

Sample Comment Box

Entry		Response		Reference	Source of Comment
Date	initials	date	initials	**1901.01**	Bill Beckwith, EPA [20080220_wbeckwith_NH WQS RE file FIS for Env-Wq 1700.txt]
2/21/2008	**pmc**	**2/21/2008**	**pmc**		

Comment: 1) wetlands definition, p. 5: Normally a definition that says "including [whatever]" means "including but not limited to." But here, DES proposes to delete the explicit language "but not limited to." This raises the question of whether DES intends to limit the definition of wetlands to just the types specifically listed. That would be a concern if it narrowed the extent to which NH's WQS are applicable to wetlands within NH that are waters of the US. Please explain the purpose and meaning of this draft revision.

Response: Revised definition

Readopt with amendment Env-Ws 1701 through Env-Ws 1709, eff. ***xx-xx-xx*** *(doc. #****xxxx****), to read as follows:*

CHAPTER Env-Wq 1700 SURFACE WATER QUALITY REGULATIONS

Statutory Authority: RSA 485-A:6, I and RSA 485-A:8, VI

PART Env-Wq 1701 INTRODUCTION

Env-Wq 1701.01 Purpose. The purpose of these rules is to establish water quality standards for the state's surface water uses as set forth in RSA 485-A:8, I, II, III and V. These standards are intended to protect public health and welfare, enhance the quality of water and serve the purposes of the Clean Water Act and RSA 485-A. These standards provide for the protection and propagation of fish, shellfish, and wildlife, and provide for such uses as recreational activities in and on the surface waters, public water supplies, agricultural and industrial uses, and navigation in accord with RSA 485-A:8, I and II.

Env-Wq 1701.02 Applicability.

(a) These rules shall apply to all surface waters.

(b) These rules shall apply to any person who causes point or nonpoint source discharge(s) of pollutants to surface waters, or who undertakes hydrologic modifications, such as dam construction or water withdrawals, or who undertakes any other activity that affects the beneficial uses or the level of water quality of surface waters.

PART Env-Wq 1702 DEFINITIONS

Env-Wq 1702.01 "Acute toxicity" means an adverse effect such as mortality or debilitation caused by an exposure of 96 hours or less to a toxic substance.

Env-Wq 1702.02 "Antidegradation" means a provision of the water quality standards that maintains and protects existing water quality and uses.

Env-Wq 1702.03 "Assimilative capacity" means the amount of a pollutant or pollutants that can safely be released to a waterbody without causing violations of applicable water quality criteria or negatively impacting uses.

Env-Wq 1702.04 "Benthic community" mean the community of plants and animals that live on, over, or in the substrate of the surface water.

Env-Wq 1702.05 "Benthic deposit" means any sludge, sediment or other organic or inorganic accumulations on the bottom of the surface water.

Env-Wq 1702.06 "Best management practices" means those practices which are determined, after problem assessment and examination of all alternative practices and technological, economic and institutional considerations, to be the most effective practicable means of preventing or reducing the amount of pollution generated by point or nonpoint sources to a level compatible with water quality goals.

Env-Wq 1702.07 "Biological integrity" means the ability of an aquatic ecosystem to support and maintain a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region.

Env-Wq 1702.08 "Biota" means species of plants or animals occurring in surface waters.

Env-Wq 1702.09 "CFR" means the Code of Federal Regulations published by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Env-Wq 1702.10 "Chronic toxicity" means an adverse effect such as reduced reproductive success or growth, or poor survival of sensitive life stages, which occurs as a result of prolonged exposure to a

toxic substance.

Env-Wq 1702.11 "Class A and B waters" means those surface waters that are legislatively classified as Class A or B waters pursuant to RSA 485-A:8, I, II and III.

Env-Wq 1702.12 "Clean Water Act (CWA)" means the federal Clean Water Act, Pub. L. 92-500**,** as amended by Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, Pub. L. 97-117, Pub. L. 100-4, 33 U.S.C. 1251 et seq.

Env-Wq 1702.13 "Community" means one or more populations co-occurring in surface waters.

Env-Wq 1702.14 "Criterion" means:

(a) A designated concentration of a pollutant;

(b) A narrative statement concerning that pollutant that when not exceeded, will protect an organism, a population, a community, or a prescribed water use; or

(c) A numeric value or narrative statement related to other characteristics of the surface waters, such as flow and biological community integrity.

Env-Wq 1702.15 "Cultural eutrophication" means the human-induced addition of wastes containing nutrients to surface waters which results in excessive plant growth and/or a decrease in dissolved oxygen.

Env-Wq 1702.16 "Department" means the department of environmental services.

Env-Wq 1702.17 "Designated uses" means those uses specified in water quality standards for each waterbody or segment whether or not such uses are presently occurring.

Env-Wq 1702.18 "Discharge" means:

(a) The addition, introduction, leaking, spilling, or emitting of a pollutant to surface waters, either directly or indirectly through the groundwater, whether done intentionally, unintentionally, negligently or otherwise; or

(b) The placing of a pollutant in a location where the pollutant is likely to enter surface waters.

Env-Wq 1702.19 "Dissolved oxygen" (D.O.)**"** means the oxygen dissolved as a gas in sewage, water or other liquid expressed in milligrams per liter (mg/l), parts per million (ppm), or percent saturation.

Env-Wq 1702.20 "Effluent limitation(s)" means any restriction(s) imposed by the department pursuant to RSA 485-A on quantities, discharge rates, characteristics, and concentrations of pollutants which are discharged to surface waters.

Env-Wq 1702.21 "Environmental Protection Agency (EPA)" means the United States Environmental Protection Agency.

Env-Wq 1702.22 "Epilimnion" means the upper, well-circulated warm layer of a thermally stratified lake, pond, impoundment or reservoir.

Env-Wq 1702.23 "Existing uses" means those uses, other than assimilation or waste transport,

which actually occurred in the waterbody on or after November 28, 1975, whether or not they are included in the water quality standards.

Env-Wq 1702.24 "High quality surface waters" means all surface waters whose water quality is better than required by any aquatic life and/or human health water quality criteria contained in these rules or other criteria assigned to the surface water, or whose qualities and characteristics make them critical to the propagation or survival of important living natural resources.

Env-Wq 1702.25 "Industrial waste" means "industrial waste" as defined in RSA 485-A:2, VI, namely "any liquid, gaseous or solid waste substance resulting from any process of industry, manufacturing trade or business or from development of any natural resources."

Env-Wq 1702.26 "Maintain and protect" means to preserve the existing and designated uses of surface waters.

Env-Wq 1702.27 "Mixing zone" means a defined area or volume of the surface water surrounding or adjacent to a wastewater discharge where the surface water, as a result of the discharge, might not meet all applicable water quality standards.

Env-Wq 1702.28 "Most sensitive use" means the use which is most susceptible to degradation by a specific pollutant, combination of pollutants, or activity, such as:

(a) Drinking;

(b) Swimming;

(c) Boating;

(d) Fish and aquatic life propagation;

(e) Fish consumption by higher level consumers including man; or

(f) Irrigation.

Env-Wq 1702.29 "Naturally occurring conditions" means conditions which exist in the absence of human influences.

Env-Wq 1702.30 "Nephelometric turbidity unit (NTU)" means a standard used to measure the optical property that causes light to be scattered and absorbed rather than transmitted in straight lines through water, as measured by a nephelometer.

Env-Wq 1702.31 "Noncontact cooling water" means water used for cooling which does not come into direct contact with any raw material, intermediate product, waste product or finished product and to which no pollutants, other than heat, have been added.

Env-Wq 1702.32 "Nonpoint source" means any source other than a point source as defined in Env-Wq 1702.38.

Env-Wq 1702.33 "No observed effect concentration" (NOEC)***"*** means the highest measured continuous concentration, in percent, of an effluent at which no adverse effects are observed on the aquatic test organisms.

Env-Wq 1702.34 "Nuisance species" means any species of flora or fauna living in or near the water whose noxious characteristics or presence in sufficient number or mass prevent or interfere with a designated use of those surface waters.

Env-Wq 1702.35 "Other wastes" means "other wastes" as defined in RSA 485-A:2, VIII, namely, "garbage, municipal refuse, decayed wood, sawdust, shavings, bark, lime, ashes, offal, oil, tar, chemicals and other substances other than sewage or industrial wastes, and any other substance harmful to human, animal, fish, or aquatic life."

Env-Wq 1702.36 "Outstanding Resource Water (ORW)" means surface waters of exceptional recreational or ecological significance.

Env-Wq 1702.37 "pH" means a measure of the hydrogen ion concentration in a solution, expressed as the logarithm to the base 10, of the reciprocal of the hydrogen ion concentration in gram moles per liter.

Env-Wq 1702.38 "Point source" means a discernible, confined, and discrete conveyance from which pollutants are or might be discharged, excluding return flows from irrigated agriculture or agricultural stormwater runoff, and including but not limited to a:

(a) Pipe;

(b) Ditch;

(c) Channel;

(d) Tunnel;

(e) Conduit;

(f) Well;

(g) Discrete fissure;

(h) Container;

(i) Rolling stock;

(j) Concentrated animal feeding operation; or

(k) Vessel or other floating craft.

Env-Wq 1702.39 "Pollutant" means "pollutant" as defined in 40 CFR 122.2.

Env-Wq 1702.40 "Pollution" means the man-made or man-induced alteration of the chemical, physical, biological, or radiological integrity of water.

Env-Wq 1702.41 "Population" means a group of individuals of one biological species co-occurring in time and space.

Env-Wq 1702.42 "Publicly owned treatment works" (POTW)*"* means any device or system used in the treatment of municipal sewage and/or industrial wastewater which is owned by the state, or a political

subdivision of the state.

Env-Wq 1702.43 "Radionuclide" means a radioactive atomic nucleus specified by its atomic number, atomic mass and energy state.

Env-Wq 1702.44 "7Q10" means the lowest average flow which occurs for 7 consecutive days on an annual basis with a recurrence interval of once in 10 years on average, expressed in terms of volume per time period.

Env-Wq 1702.45 "Sewage" means "sewage" as defined in RSA 485-A:2, X, namely, "the water carried waste products from buildings, public or private, together with such groundwater infiltration and surface water as may be present."

Env-Wq 1702.46 "Surface waters" means "surface waters of the state" as defined in RSA 485-A:2, XIV and waters of the United States as defined in 40 CFR 122.2.

Env-Wq 1702.47 "Tainting substance" means any material that can impart objectionable taste, odor, or color to the flesh of fish or other edible aquatic organisms.

Env-Wq 1702.48 "Tidal waters" means those portions of the Atlantic Ocean within the jurisdiction of the state, and other surface waters subject to the rise and fall of the tide.

Env-Wq 1702.49 "Toxicity test" means a test to determine the toxicity of a chemical or an effluent that involves exposing test organisms in a laboratory setting to one or more concentrations of the chemical or dilutions of the effluent in accordance with standard laboratory procedures.

Env-Wq 1702.50 "Toxic unit chronic (TU_c)***"*** means the reciprocal of the effluent dilution that causes no unacceptable effect to the test organisms by the end of the chronic exposure period. The TU_c can be calculated by dividing 100 by the chronic NOEC value.

Env-Wq 1702.51 "Waste" means "waste" as defined in RSA 485-A:2, XVI, namely "industrial waste and other wastes**.**"

Env-Wq 1702.52 "Water quality standards" means the combination of designated uses of surface waters, and the water quality criteria for such surface waters based upon such uses.

Env-Wq 1702.53 "Wetlands" means "wetland**s**" as defined in RSA 482-A:2, X, namely "an area that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetlands ***are*** ~~include swamps, marshes, bogs and similar~~ areas as delineated in accordance with Env-Wt 100 et seq.

Entry		Response		Reference	Source of Comment
Date	initials	date	initials	**1702.53**	Bill Beckwith, EPA [20080220_wbeckwith_NH WQS RE file FIS for Env-Wq 1700.txt]
2/21/2008	**pmc**	**2/21/2008**	**pmc**		

Comment: 1) wetlands definition, p. 5: Normally a definition that says "including [whatever]" means "including but not limited to." But here, DES proposes to delete the explicit language "but not limited to." This raises the question of whether DES intends to limit the definition of wetlands to just the types specifically listed. That would be a concern if it narrowed the extent to which NH's WQS are applicable to wetlands within NH that are waters of the US. Please explain the purpose and meaning of this draft revision.

Response: Revised definition

Env-Wq 1702.54 "Zone of passage" means an area bordering a mixing zone and which is free from pollutants and which allows for unobstructed movement of aquatic organisms.

PART Env-Wq 1703 WATER QUALITY STANDARDS

Env-Wq 1703.01 Water Use Classifications.

(a) State surface waters shall be divided into class A and class B, pursuant to RSA 485-A:8, I, II and III. Each class shall identify the most sensitive use which it is intended to protect.

(b) All surface waters shall be restored to meet the water quality criteria for their designated classification including existing and designated uses, and to maintain the chemical, physical, and biological integrity of surface waters.

(c) All surface waters shall provide, wherever attainable, for the protection and propagation of fish, shellfish and wildlife, and for recreation in and on the surface waters.

(d) Unless the flows are caused by naturally occurring conditions, surface water quantity shall be maintained at levels adequate to protect existing and designated uses.

Env-Wq 1703.02 Wetlands Criteria.

(a) Subject to (b)**,** below, wetlands shall be subject to the criteria listed in this part.

(b) Wherever the naturally occurring conditions of the wetlands are different from the criteria listed in these rules, the naturally occurring conditions shall be the applicable water quality criteria.

Env-Wq 1703.03 General Water Quality Criteria.

(a) The presence of pollutants in the surface waters shall not justify further introduction of pollutants from point or nonpoint sources**,** alone or in any combination.

(b) State surface waters shall retain their legislated classification even if they fail to meet any or all of the general, class-specific, or toxic criteria contained in this part.

(c) The following physical, chemical and biological criteria shall apply to all surface waters:

(1) All surface waters shall be free from substances in kind or quantity which:

a. Settle to form harmful deposits;

b. Float as foam, debris, scum or other visible substances;

c. Produce odor, color, taste or turbidity which is not naturally occurring and would render it unsuitable for its designated uses;

d. Result in the dominance of nuisance species; or

e. Interfere with recreational activities;

(2) The level of radioactive materials in all surface waters shall not be in concentrations or combinations that would:

a. Be harmful to human, animal or aquatic life or the most sensitive designated use;

b. Result in radionuclides in aquatic life exceeding the recommended limits for consumption by humans; or

c. Exceed limits specified in EPA's national drinking water regulations or Env-Ws 300 or successor rules in subtitle Env-Dw, whichever are more stringent; and

(3) Tainting substances shall not be present in concentrations that individually or in combination are detectable by taste and odor tests performed on the edible portions of aquatic organisms.

Env-Wq 1703.04 Class-Specific Criteria. In addition to the general water quality criteria specified in Env-Wq 1703.03, the class criteria specified in Env-Wq 1703.05 through Env-Wq 1703.32 shall apply to all surface waters. The surface waters in each classification shall satisfy all the provisions of the lower classifications.

Env-Wq 1703.05 Combined Sewer Overflows.

(a) To demonstrate that the class B criteria cannot reasonably be met in surface waters as a result of the combined sewer overflows, the applicant for a water discharge permit under RSA 485-A:13 shall conduct and submit a use attainability analysis (UAA) in accord with 40 CFR Part 131 to the department.

(b) If, after public notice and comment, the department determines, based on the information provided in (a)**,** above, that the UAA supports the establishment of less stringent criteria, it shall recommend a change in the classification of the waterbody to the legislature.

(c) Exceedances of class B criteria and uses shall be limited to those identified in the Combined Sewer Overflow Facilities Plan after full implementation of the control measures.

Env-Wq 1703.06 Bacteria.

(a) Uses and criteria associated with bacteria shall be as set forth in RSA 485-A:8, I, II, and V.

(b) Subject to (c)**,** below, the bacteria criteria shall be applied at the end of a wastewater treatment facility's discharge pipe.

(c) For combined sewer overflows that discharge into non-tidal waters, a bacteria criteria of 1**,**000 Escherichia coli per 100 milliliters shall be applied at the end of the combined sewer overflow's discharge pipe.

Env-Wq 1703.07 Dissolved Oxygen.

(a) Class A waters shall have a dissolved oxygen content of at least 75% saturation, based on a daily average, and an instantaneous minimum of at least 6 mg/l at any place or time except as naturally occurs.

(b) Except as naturally occurs, or in waters identified in RSA 485-A:8, III, or subject to (c)**,** below, class B waters shall have a dissolved oxygen content of at least 75% of saturation, based on a daily average, and an instantaneous minimum dissolved oxygen concentration of at least 5 mg/l.

(c) For the period from October 1st to May 14th, in areas identified by the fish and game department as cold water fish spawning areas of species whose early life stages are not directly exposed to the water, the 7 day mean dissolved oxygen concentration shall be at least 9.5 mg/l and the instantaneous minimum dissolved oxygen concentration shall be at least 8 mg/l. This period shall be extended to June 30 for a particular waterbody if the fish and game department determines it is necessary to protect spring spawners or late hatches of fall spawners, or both.

(d) Unless naturally occurring or subject to (a)**,** above, surface waters within the top 25 percent of depth of thermally unstratified lakes, ponds, impoundments and reservoirs or within the epilimnion shall contain a dissolved oxygen content of at least 75 percent saturation, based on a daily average and an instantaneous minimum dissolved oxygen content of at least 5 mg/l. Unless naturally occurring, the dissolved oxygen content below those depths shall be consistent with that necessary to maintain and protect existing and designated uses.

Env-Wq 1703.08 Benthic Deposits.

(a) Class A waters shall contain no benthic deposits, unless naturally occurring.

(b) Class B waters shall contain no benthic deposits that have a detrimental impact on the benthic community, unless naturally occurring.

Env-Wq 1703.09 Oil and Grease.

(a) Class A waters shall contain no oil or grease, unless naturally occurring.

(b) Class B waters shall contain no oil or grease in such concentrations that would impair any existing or designated uses.

Env-Wq 1703.10 Color.

(a) Class A waters shall contain no color, unless naturally occurring.

(b) Class B waters shall contain no color in such concentrations that would impair any existing or designated uses, unless naturally occurring.

Env-Wq 1703.11 Turbidity.

(a) Class A waters shall contain no turbidity, unless naturally occurring.

(b) Class B waters shall not exceed naturally occurring conditions by more than 10 NTUs.

(c) Waters identified in RSA 485-A:8, III shall contain no turbidity of unreasonable kind or

quality.

(d) For purposes of state enforcement actions, if a discharge causes or contributes to an increase in turbidity of 10 NTUs or more above the turbidity of the receiving water upstream of the discharge or otherwise outside of the visible discharge, a violation of the turbidity standard shall be deemed to have occurred.

Entry		Response		Reference	Source of Comment
Date	initials	date	initials	**1703.11**	Bill Beckwith, EPA [20080220_wbeckwith_NH WQS RE file FIS for Env-Wq 1700.txt]
2/21/2008	**pmc**				

Comment: 2) The draft turbidity criteria language for class B in the WQS text (p. 8), and the language suggested in Gretchen Hamel's 1/02/08 message at Env-Wq 1703.11(d): We continue to have the concerns expressed earlier about the draft language for Class B (please see 1/03/08 message). We are also concerned with the draft provision suggested for a new Env-Wq 1703.11(d), i.e., "For purposes of state enforcement actions, if a discharge causes or contributes to an increase in turbidity of 10 NTUs or more above the turbidity of the receiving water upstream of the discharge or otherwise outside of the visible discharge plume, a violation of the turbidity standard shall be deemed to have occurred." Introduction of a separate interpretation for enforcement creates confusion as to the meaning of the underlying criteria otherwise applicable at Env-Wq 1703.11(a), (b), and (c). To the extent that NH may feel that the suggested provision is necessary, it would be better used as an enforcement discretion policy, and not included in the WQS.

Response:

Env-Wq 1703.12 Slicks, Odors, and Surface Floating Solids.

(a) Class A waters shall contain no slicks, odors, or surface floating solids unless naturally occurring.

(b) Class B waters shall contain no slicks, odors, or surface floating solids that would impair any existing or designated use, unless naturally occurring.

(c) Waters identified in RSA 485-A:8, III shall be free from slick***s***, odors, and surface floating solids of unreasonable kind or quantity.

Env-Wq 1703.13 Temperature.

(a) There shall be no change in temperature in class A waters, unless naturally occurring.

(b) Temperature in class B waters shall be in accordance with RSA 485-A:8, II, and VIII.

Env-Wq 1703.14 Nutrients.

(a) Class A waters shall contain no phosphorus or nitrogen unless naturally occurring.

(b) Class B waters shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring.

(c) ~~Existing~~ ***D***~~d~~ischarges containing either phosphorus or nitrogen ***that*** ~~which~~ encourage cultural eutrophication shall be treated to remove phosphorus or nitrogen to ensure attainment and maintenance of water quality standards.

(1) A discharge to a lake or pond or to a surface water that drains to a lake or pond that contains a mean total phosphorus concentration that is 10 ug/l or more above the mean total phosphorus concentration in the receiving lake or pond outside the influence of the discharge is deemed to encourage cultural eutrophication.

(2) A discharge to flowing waters not included in (1) above that results in a mean total phosphorus concentration of 100 ug/l or more in the flowing water is deemed to encourage cultural eutrophication

(d) There shall be no new or increased discharge of ***sewage or waste containing*** phosphorus **or nitrogen** ~~in~~to lakes or ponds ***or to surface waters that drain to lakes or ponds.***

(e) ***Reserved for words that cover septic systems and wastewater land application sites.*** ~~There shall be no new or increased discharge(s) containing phosphorus or nitrogen to tributaries of lakes or ponds that would contribute to cultural eutrophication or growth of weeds or algae in such lakes and ponds.~~

Entry		Response		Reference	Source of Comment
Date	initials	date	initials	**1703.14**	DES internal workgroup [20080211 nutrient.doc]
2/21/2008	**pmc**	**2/21/2008**	**pmc**		
Comment: **Response:** Incorporated DES internal workgroup recommendations					

Env-Wq 1703.15 Gross Beta Radioactivity. Class A and B waters shall not contain gross beta radioactivity in excess of 1,000 picocuries per liter.

Env-Wq 1703.16 Strontium-90. Class A and B waters shall not contain strontium-90 in excess of 10 picocuries per liter.

Env-Wq 1703.17 Radium-226. Class A and B waters shall contain no radium-226 in excess of 3 picocuries per liter.

Env-Wq 1703.18 pH.

(a) The pH of Class A waters shall be as naturally occurs.

(b) The pH of Class B waters shall be 6.5 to 8.0, unless due to natural causes.

(c) The pH of waters identified in RSA 485-A:8, III shall be 6.0 to 9.0, unless due to natural causes.

Env-Wq 1703.19 Biological and Aquatic Community Integrity.

(a) The surface waters shall support and maintain a balanced, integrated, and adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of similar natural habitats of a region.

(b) Differences from naturally occurring conditions shall be limited to non-detrimental differences in community structure and function.

Env-W~~q~~ 1703.20 Human Health Criteria for Toxic Substances.

(a) The department shall use a risk factor of one in 1,000,000 when determining human health criteria for all new discharges. The department shall also use a one in 1,000,000 risk factor in determining human health criteria for all existing discharges unless it can be demonstrated by the applicant for a water discharge permit under RSA 485-A:13 that the criteria obtained using the one in 1,000,000 risk factor cannot be achieved because it is either technologically impossible or economically unfeasible. However, in no case shall the department allow a risk factor greater than one in 100,000.

(b) For the protection of human health, class A and B waters shall not contain dioxin (2, 3, 7, 8 - TCDD) in excess of 0.001 ng/l, unless allowed under part Env-Wq 1707.

Env-Wq 1703.21 Water Quality Criteria for Toxic Substances.

(a) Unless naturally occurring or allowed under part Env-Wq 1707, all surface waters shall be free from toxic substances or chemical constituents in concentrations or combinations that:

(1) Injure or are inimical to plants, animals, humans or aquatic life; or

(2) Persist in the environment or accumulate in aquatic organisms to levels that result in harmful concentrations in edible portions of fish, shellfish, other aquatic life, or wildlife which might consume aquatic life.

(b) Unless allowed in part Env-Wq 1707 or naturally occurring, concentrations of toxic substances in all surface waters shall not exceed the recommended safe exposure levels of the most sensitive surface water use shown in Table 1703.1, subject to the notes as explained in Env-Wq 1703.22~~.~~. Values in Table 1703.1 are based on EPA Water Quality Criteria recommendations that can be found in the sources referenced in www.epa.gov/waterscience/criteria/Wqcriteria.html.

TABLE 1703.1
Water Quality Criteria For Toxic Substances

	Protection of Aquatic Life Concentration in micrograms per liter (ug/l)				Protection of Human Health for Consumption of: (Units per Liter)	
Chemical	Fresh Acute Criteria	Fresh Chronic Criteria	Marine Acute Criteria	Marine Chronic Criteria	Water & Fish/shellfish	Fish/shellfish Only

Acenaphthene	1,700	520	970	710	20 ug[j]	20 ug[j]
Acrolein	68	21	55	--	~~320~~ ***190*** ug	~~780~~ ***290*** ug
Acrylonitrile	7,550	2,600	--	--	~~0.059~~ ***0.051*** ug[c]	~~0.66~~ ***0.25*** ug[c]
Aldrin	3.0[k]	--	1.3[k]	--	~~0.13~~ ***0.049*** ng[c]	~~0.14~~ ***0.050*** ng[c]
Alkalinity	--	20,000	--	--	--	--
Aluminum	750	87	--	--	--	--
Ammonia[a]					--	--
Aniline	28	14	77	37	--	--
Anthracene	(see Polynuclear Aromatic Hydrocarbons)				~~9,600~~ ***8300*** ug	~~110,000~~ ***40000*** ug
Antimony	9,000	1,600	--	--	~~14~~ ***5.6*** ug[l,m]	~~4300~~ ***640*** ug
Arsenic	340[d,i]	150[d,i]	69[d,i]	36[d,i]	18 ng[b,c]	140 ng[b,c]
Asbestos	--	--	--	--	7,000,000 ~~fibres~~***fibers***[c]	
Barium	--	--	--	--	1.0 mg[l,m]	--
Benzene	5,300	--	5,100	700	~~1.2~~ ***2.2*** ug[c]	~~71~~ ***51*** ug[c]
Benzidine	2,500	--	--	--	~~0.12~~ ***0.086*** ng[c]	~~0.54~~ ***0.20*** ng[c]
Benzo(a) Anthracene	(see Polynuclear Aromatic Hydrocarbons)				~~0.0044~~ ***0.0038*** ug[c]	~~0.049~~ ***0.018*** ug[c]
Benzo(a) Pyrene	(see Polynuclear Aromatic Hydrocarbons)				~~0.0044~~ ***0.0038*** ug[c]	~~0.049~~ ***0.018*** ug[c]
Benzo(b) Fluoranthene	(see Polynuclear Aromatic Hydrocarbons)				~~0.0044~~ ***0.0038*** ug[c]	~~0.049~~ ***0.018*** ug[c]
Benzo(g,h,i) Perylene	(see Polynuclear Aromatic Hydrocarbons)				--	--
Benzo(k) Fluoranthene	(see Polynuclear Aromatic Hydrocarbons)				~~0.0044~~ ***0.0038*** ug[c]	~~0.049~~ ***0.018*** ug[c]
Beryllium	130	5.3	--	--	~~1~~ ***m***	--
BHC	100[e]	--	0.34[e]	--	(see individual compounds)	
alpha-BHC	(see BHC)				~~3.9~~ ***2.6*** ng[c]	~~13~~ ***4.9*** ng[c]
beta-BHC	(see BHC)				~~14~~ ***9.1*** ng[c]	~~46~~ ***17*** ng[c]
delta-BHC	(see BHC)				0.0123 ug	0.0414 ug
gamma-BHC (Lindane)	0.95	.08	.16[k]	--	~~19 ng~~ 0.98 ug[c]	~~63 ng~~ 1.8 ug[c]
technical-BHC	--	--	--	--	0.0123 ug	0.0414 ug
Bis (2-Chloroethyl) Ether	(see Chloroalkyl ethers)				~~0.031~~ ***0.03 ug***[c]	~~1.4~~ ***0.53 ug***[c]
Bis (2-Ethylhexy)Phthalate	(see Phthalate esters)				~~1.8~~ ***1.2*** ug[c]	~~5.9~~ ***2.2*** ug[c]
Bromoform	(see Halomethanes)				4.3 ug[c]	~~360~~ ***140*** ug[c]
4-Bromophenyl phenyl ether	(see Haloethers)				--	--
Butyl benzyl phthalate	(see Phthalate esters)				~~3000~~ ***1500*** ug	~~5200~~ ***1900*** ug
Cadmium[l]	~~0.95~~ **0.52**[f,d]	~~0.80~~ **0.09**[f,d]	~~42~~ **40**[d]	~~9.3~~ **8.8**[d]	***m***	--
Carbon Tetrachloride	35,200	--	50,000	--	~~0.25~~ ***0.23*** ug[c]	~~4.4~~ ***1.6*** ug[c]
Chlordane	2.4[k]	0.0043[k]	0.09[k]	0.004[k]	~~2.1~~ ***0.8*** ng[c]	~~2.2~~ ***0.81*** ng[c]
Chlorinated benzenes	250[e]	50[e]	160[e]	129[e]	(see individual compounds)	
Chlorobenzene	(See Chlorinated benzenes)				20 ug[j]	20 ug[j]
Chlorides	860,000	230,000	--	--	--	--

Chlorinated napthalenes	1,600[e]	--	7.5[e]	--	(see individual compounds)	
Chlorine	19	11	13	7.5	~~1~~ ***m***	--
Chloroalkyl ethers	238,000[e]	--	--	--	(see individual compounds)	
Chloroethyl ether (Bis-2)	(see Chloroalkyl ethers)				~~0.031~~ ***0.03*** ug[c]	~~1.4~~ ***0.53*** ug[c]
Chloroethyl vinyl ether-2	(see Chloroalkyl ethers)				--	--
Chlorodibromomethane	(see Halomethanes)				~~0.41~~ ***0.40*** ug[c]	~~34~~ ***13*** ug[c]
Chloroethoxy methane (Bis-2)	(see Chloroalkyl ethers)				--	--
Chloroform	28,900	1,240	(see Halomethanes)		5.7 ug[c]	470 ug[c]
Chloroisopropyl ether (Bis-2)	(see Chloroalkyl ethers)				1,400 ug	~~170,000~~ ***65000*** ug
p-Chloro-m-cresol	30	--	--	--	3,000 ug[j]	3,000 ug[j]
Chloromethyl ether (Bis)	(see Chloroalkyl ethers)				~~0.13~~ ***0.1*** ng[c]	~~0.78~~ ***0.29*** ng[c]
Chloronaphthalene 2	(see Chlorinated naphthalenes)				~~1,700~~ ***1000*** ug	~~4,300~~ ***1600*** ug
Chlorophenol 2	4,380	2,000	--	--	0.1 ug[j]	0.1 ug[j]
Chlorophenol 3	--	--	--	--	0.1 ug[j]	0.1 ug[j]
Chlorophenol 4	--	--	29,700	--	0.1 ug[j]	0.1 ug[j]
Chlorophenoxy herbicides (2,4,5-TP)	--	--	--	--	10 ug	--
Chlorophenoxy herbicides (2,4-D)	--	--	--	--	100 ug[l-m]	--
Chlorophenyl phenyl ether 4	(see Haloethers)				--	--
Chlor***o***pyrifos	0.083	0.041	0.011	0.0056	--	--
Chloro-4 Methyl-3 Phenol	30	--	--	--	3,000 ug[j]	3,000 ug[j]
Chromium +6	16[d,i]	11[d,i]	1,100[d,i]	50[d,i]	~~1~~ ***m***	--
Chromium+3	183[f,d,i]	24[f,d,i]	10,300	--	~~--~~ ***m***	--
Chrysene	(see Polynuclear Aromatic Hydrocarbons)				~~0.0044~~ ***0.0038*** ug[c]	~~0.049~~ ***0.018*** ug[c]
Copper[i]	3.6[f,d]	2.7[f,d]	4.8[d]	3.1[d]	1,000 ug[j]	1,000 ug[j]
Cyanide	22[~~m~~ ***n***]	5.2[~~m~~ ***n***]	1.0[~~m~~ ***n***]	1.0[~~m~~ ***n***]	~~700~~ ***140*** ug[f]	~~220,000~~ ***140*** ug
DDE(4,4')	1,050	--	14	--	~~0.59~~ ***0.22*** ng[c]	~~0.59~~ ***0.22*** ng[c]
DDD(4,4')	0.06	--	3.6	--	~~0.83~~ ***0.31*** ng[c]	~~0.84~~ ***0.31*** ng[c]
DDT(4,4')	1.1[k]	0.001[k]	0.13[k]	0.001[k]	~~0.59~~ ***0.22*** ng[c]	~~0.59~~ ***0.22*** ng[c]
Demeton	--	0.1	--	0.1	--	--
Diazinon	***0.17***	***0.17***	***0.82***	***0.82***	--	--
Dibenzo(a,h)Anthracene	(see Polynuclear Aromatic Hydrocarbons)				~~0.0044~~ ***0.0038*** ug[c]	~~0.049~~ ***0.018*** ug[c]
Dibutyl Phthalate	(see Phthalate esters)				~~2.7~~ ***2.0*** mg	~~12~~ ***4.5*** mg
Dichlorobenzenes	1,120[e]	763[e]	1,970[e]	--	(see individual compounds)	
Dichlorobenzene(1,2)	(see Dichlorobenzenes)				~~2,700~~ ***420*** ug[l-m]	~~17,000~~ ***1300***ug
Dichlorobenzene(1,3)	(see Dichlorobenzenes)				~~400~~ ***320*** ug	~~2600~~ ***960*** ug
Dichlorobenzene(1,4)	(see Dichlorobenzenes)				~~400~~ ***63*** ug[l-m]	~~2600~~ ***190*** ug
Dichlorobenzidine(3,3')	--	--	--	--	~~0.04~~ ***0.021*** ug[c]	~~0.077~~ ***0.028*** ug[c]
Dichlorobromomethane	(see Halomethanes)				~~0.56~~ ***0.55*** ug[c]	~~46~~ ***17*** ug[c]

Dichlorodifluoromethane	(see Halomethanes)				~~6.9 mg~~ ***0.19ug***[c]	~~570 mg~~ ***15.7ug***[c]
Dichloroethane(1,2)	118,000	20,000	113,000	--	0.38 ug[c]	~~99~~ ***37*** ug[c]
Dichloroethylenes	11,600[e]	--	224,000[e]	--	(see individual compounds)	
Dichloroethylene(1,1)	(see Dichloroethylenes)				~~0.057~~ ***330*** ug[e]	~~3.2~~ ***7100*** ug[e]
Dichloroethylene(1,2-Trans)	(see Dichloroethylenes)				~~700~~ ***140*** ug[l-m]	~~140,000~~ ***10000*** ug
Dichlorophenol(2,3)	--	--	--	--	0.04 ug[j]	0.04 ug[j]
Dichlorophenol(2,4)	2,020	365	--	--	~~93~~ ***0.3*** ug	~~790~~ ***0.3*** ug
Dichlorophenol(2,5)	--	--	--	--	0.5 ug[j]	0.5 ug[j]
Dichlorophenol(2,6)	--	--	--	--	0.2 ug[j]	0.2 ug[j]
Dichlorophenol(3,4)	--	--	--	--	0.3 ug[j]	0.3 ug[j]
Dichloropropanes	23,000[e]	5,700[e]	10,300[e]	3,040[e]	(see individual compounds)	
Dichloropropane(1,2)	(see Dichloropropanes)				~~0.52~~ ***0.5*** ug[c]	~~39~~ ***15*** ug[c]
Dichloropropenes	6,060[e]	244[e]	790[e]	--	(see individual compounds)	
Dichloropropene(1,3)	(see Dichloropropenes)				~~10~~ ***0.34*** ug	~~1700~~ ***21*** ug
Dieldrin	0.24	0.056	0.71[k]	0.0019[k]	~~0.14~~ ***0.052*** ng[c]	~~0.14~~ ***0.054*** ng[c]
Diethyl Phthalate	***(see Phthalate esters)***				~~23~~ ***17*** mg	~~120~~ ***44*** mg
Dimethyl Phenol(2,4)	1,300	530	270	110	~~400~~ ***380*** ug[j]	400 ug[j]
Dimethyl Phthalate	(see Phthalate esters)				~~313~~ ***270*** mg	~~2.9~~ ***1.1*** g
Di-n-butyl Phthalate	(see Phthalate esters)				~~2.7~~ ***2*** mg	~~12~~ ***4.5*** mg
Dinitrotoluenes	330[e]	230[e]	590[e]	370[e]	(see individual compounds)	
Dinitrotoluene(2,4)	(see Dinitrotoluenes)				0.11 ug[c]	~~9.1~~ ***3.4*** ug[c]
Dinitrotoluene(2,6)	(see Dinitrotoluenes)				--	--
Dinitro-o-cresol (2,4)	(see Nitrophenols)				~~13.4~~ ***13.0*** ug	~~765~~ ***280*** ug
Dinitro-o-cresol (4,6)	(see Nitrophenols)				~~13.4~~ ***13.0*** ug	~~765~~ ***280*** ug
Dinitrophenols	(see Nitrophenols)				~~70~~ ***69*** ug	~~14,000~~ ***5300*** ug
Dinitrophenol(2,4)	(see Nitrophenols)				~~70~~ ***69*** ug	~~14,000~~ ***5300*** ug
Di-n-octyl phthalate	(see Phthalate esters)				--	--
Diphenylhydrazine(1,2)	270	--	--	--	~~0.04~~ ***0.036*** ug[c]	~~0.54~~ ***0.2*** ug[c]
Di-2-ethylhexyl phthalate	(see Phthalate esters)				~~1.8~~ ***1.2*** ug[c]	~~5.9~~ ***2.2*** ug[c]
alpha-Endosulfan	0.22[k]	0.056[k]	0.034[k]	0.0087[k]	~~110~~ ***62*** ug	~~240~~ ***89*** ug
beta-Endosulfan	0.22[k]	0.056[k]	0.034[k]	0.0087[k]	~~110~~ ***62*** ug	~~240~~ ***89*** ug
Endosulfan Sulfate	--	--	--	--	~~110~~ ***62*** ug	~~240~~ ***89*** ug
Endrin	0.086	0.036	0.037[k]	0.0023[k]	~~0.76~~ ***0.059*** ug	~~0.81~~ ***0.06*** ug
Endrin Aldehyde	--	--	--	--	~~0.76~~ ***0.29*** ug	~~0.81~~ ***0.3*** ug
Ethylbenzene	32,000	--	430	--	~~3,100~~***530*** ug[f] ##	~~29,000~~ ***2100*** ug
Fluoranthene	**--**	**--**	**--**	**--**	***130 ug***	***140 ug***
Fluorene	(see Polynuclear Aromatic Hydrocarbons)				~~1,300~~ ***1100*** ug	~~14,000~~ ***5300*** ug
Guthion	--	0.01	--	0.01	--	--
Haloethers	360[e]	122[e]	--	--	(see individual compounds)	
Halomethanes	11,000[e]	--	12,000[e]	6,400[e]	(see individual compounds)	
Heptachlor	0.52[k]	0.0038[k]	0.053[k]	0.0036[k]	~~0.21~~ ***0.079*** ng[c]	~~0.21~~ ***0.079*** ng[c]

Heptachlor Epoxide	0.52[k]	0.0038[k]	0.053[k]	0.0036[k]	~~0.10~~ ***0.039*** ng[c]	~~0.11~~ ***0.039*** ng[c]
Hexachloroethane	980	540	940	--	~~1.9~~ ***1.4*** ug[c]	~~8.9~~ ***3.3*** ug[c]
Hexachlorobenzene	(see Chlorinated benzenes)				~~0.75~~ ***0.28*** ng[c]	~~0.77~~ ***0.29*** ng[c]
Hexachlorobutadiene	90	9.3	32	--	0.44 ug[c]	~~50~~ ***18*** ug[c]
Hexachlorocyclo-hexane-(Technical)	(see BHC)				0.0123 ug	0.0414 ug
Hexachlorocyclopentadiene	7.0	5.2	7.0	--	1.0[j] ***ug***	1.0[j] ***ug***
Ideno(1,2,3-cd)Pyrene	(see Polynuclear Aromatic Hydrocarbons)				~~0.0044~~ ***0.0038*** ug[c]	~~0.049~~ ***0.018*** ug[c]
Iron	--	1,000	--	--	0.3 mg	--
Isophorone	117,000	--	12,900	--	~~36~~ ***35*** ug[c]	~~2,600~~ ***960*** ug[c]
Lead[i]	14[f,d]	0.54[f,d]	210[d]	8.1[d]	--	--
Malathion	0.1	0.1		0.1	--	--
Manganese	--	--	--	--	50 ug	100 ug
Mercury	1.4[d,i,g]	0.77[d,i,g]	1.8[d,i,g]	0.94[d,i,g]	~~0.05 ug~~	~~0.051 ug~~
Methylmercury					***0.11 ng[g]***	***0.11 ng[g]***
Methoxychlor	--	0.03	--	0.03	100 ug[l,m]	--
Methyl Bromide	(see Halomethanes)				~~48~~ ***47*** ug	~~4,000~~ ***1500*** ug
Methyl Chloride	(see Halomethanes)				--	--
Methylene Chloride	(see Halomethanes)				~~4.7~~ ***4.6*** ug[c]	~~1,600~~ ***590*** ug[c]
2 Methyl-4,6-Dinitrophenol	(see Nitrophenols)				~~13.4~~ ***13.0*** ug	~~765~~ ***280*** ug
2-Methyl-4-chlorophenol	--	--	--	--	1,800 ug[j]	1,800 ug[j]
3-Methyl-4-chlorophenol	30	--	--	--	3,000 ug[j]	3,000 ug[j]
3-Methyl-6-chlorophenol	--	--	--	--	20 ug[j]	20 ug[j]
Mirex	--	0.001	--	0.001	--	--
Naphthalene	2,300	620	2,350	--	--	--
Nickel[i]	144.9 [f,d]	16.1 [f,d]	74[d]	8.2[d]	610 ug	4,600 ug
Nitrates	--	--	--	--	10 mg	--
Nitrobenzene	27,000	--	6,680	--	17 ug	30 ug[j]
Nitrophenols	230[e]	150[e]	4,850[e]	--	(see individual compounds)	
Nitrophenol 2	(see Nitrophenols)				--	--
Nitrophenol 4	(see Nitrophenols)				--	--
Nitrosamines	5,850[e]	--	3,300,000[e]	--	0.8 ng	1.24 ug
Nitrosodibutylamine N	(see Nitrosamines)				~~6.4~~ ***6.3*** ng	~~587~~ ***220*** ng
Nitrosodiethylamine N	(see Nitrosamines)				0.8 ng	1,240 ng
Nitrosodimethylamine N	(see Nitrosamines)				0.69 ng[c]	~~8.1~~ ***3.0*** ug[c]
Nitrosodi-n-propylamine N	(see Nitrosamines)				0.005 ug[c]	~~1.4~~ ***0.51*** ug[c]
Nitrosodiphenylamine N	(see Nitrosamines)				~~5.0~~ ***3.3*** ug[c]	~~16~~ ***6*** ug[c]
Nitrosopyrrolidine N	(see Nitrosamines)				16 ng	~~91,900 ng~~ ***34 ug***
Nonylphenol	***28***	***6.6***	***7.0***	***1.7***	***--***	***--***
Parathion	0.065	0.013	--	--	--	--
PCB	2.0[e]	0.014[e]	10.0[e]	0.03[e]	~~0.17~~ ***0.064*** ng[c,n~~,o~~]	~~0.17~~ ***0.064*** ng[c,n~~,o~~]
PCB-1242	(see PCB)				(see PCB)	(see PCB)
PCB-1254	(see PCB)				(see PCB)	(see PCB)

PCB-1221	(see PCB)				(see PCB)	(see PCB)
PCB-1248	(see PCB)				(see PCB)	(see PCB)
PCB-1260	(see PCB)				(see PCB)	(see PCB)
PCB-1016	(see PCB)				(see PCB)	(see PCB)
Pentachlorinated Ethanes	7,240	1,100	390	281	--	--
Pentachlorobenzene	(see Chlorinated benzenes)				~~3.5~~ ***1.4*** ug	~~4.1~~ ***1.5*** ug
Pentachlorophenol	5.28[h]	4.05[h]	13	7.9	~~0.28~~ ***0.27*** ug[c]	~~8.2~~ ***3.0*** ug[c]
Phenanthrene	(see Polynuclear Aromatic Hydrocarbons)				~~--~~	~~--~~
Phenol	10,200	2,560	5,800	--	300 ug[j]	300 ug[j]
Phthalate Esters	940[e]	3[e]	2,944[e]	3.4[e]	--	--
Polychlorinated Biphenyls	(see PCB~~'s~~)				--	--
Polynuclear Aromatic Hydrocarbons	--	--	300[e]	--	(see individual compounds)	
Pyrene	(see Polynuclear Aromatic Hydrocarbons)				~~960~~ ***830*** ug	~~11,000~~ ***4000*** ug
Selenium	***p***	5	290[d,i]	71[d,i]	170 ug[l,m]	~~11,000~~ ***4200*** ug
Silver	~~0.32~~ ***0.30*** ***d***~~fig~~	--	1.9[d,i,k]	--	105 ug[p,q]	65 mg[p,q]
Sulfide-Hydrogen Sulfide	--	2.0	--	2.0	--	--
Tetrachlorobenzene 1,2,4,5	(see Chlorinated benzenes)				~~2.3~~ ***0.97*** ug	~~2.9~~ ***1.1*** ug
Tetrachloroethane 1,1,2,2	--	2,400	9,020	--	0.17 ug[c]	~~11~~ ***4*** ug[c]
	(see Tetrachloroethanes)					
Tetrachloroethanes	9,320[e]	--	--	--	(see individual compounds)	
Tetrachloroethylene	5,280	840	10,200	450	~~0.80~~ ***0.69*** ug[c]	~~8.85~~ ***3.3*** ug[c]
Tetrachlorophenol 2,3,5,6	--	--	~~440~~	***440***	--	--
Tetrachlorophenol 2,3,4,6	--	--	--	--	1.0 ug[j]	1.0 ug[j]
Thallium	1,400	40	2,130	--	~~1.7~~ ***0.24*** ug	~~6.3~~ ***0.47*** ug
Toluene	--	--	--	--	~~6.8~~ ***1.3*** mg[l,m]	~~200~~ ***15*** mg
Toxaphene	0.73	0.0002	0.21	0.0002	~~0.73~~ ***0.28*** ng[c]	~~0.75~~ ***0.28*** ng[c]
Tributyltin TBT	0.46	~~0.063~~ ***0.072***	~~0.37~~ ***0.42***	~~0.01~~ ***0.0074***	--	--
Trichlorinated Ethanes	18,000[e]	--	--	--	(see individual compounds)	
Trichlorbenzene 1,2,4	(see Chlorinated benzenes)				~~260~~ ***35*** ug[l,m]	~~940~~ ***70*** ug
Trichloroethane 1,1,1	--	--	31,200	--	[l,m]	--
Trichloroethane 1,1,2	--	9,400	--	--	~~0.60~~ ***0.59*** ug[c]	~~42~~ ***16*** ug[c]
Trichloroethylene	45,000	21,900	2,000	--	~~2.7~~ ***2.5*** ug[c]	~~81~~ ***30*** ug[c]
Trichlorofluoromethane	(see Halomethanes)				~~10 mg~~ ***0.19ug***	~~860 mg~~ ***15.7ug***
Trichlorophenol 2,4,5	--	--	--	--	1.0 ug[j]	1.0 ug[j]
Trichlorophenol 2,4,6	--	970	--	--	~~2.0~~ ***1.4*** ug[j]	2.0 ug[j]
Vinyl Chloride	--	--	--	--	~~2.0~~ ***0.025*** ug[c]	~~525~~ ***2.4*** ug[c]
Zinc[1]	36.2[f,d]	36.5[f,d]	90[d]	81[d]	5,000 ug[j]	5,000 ug[j]

Env-Wq 1703.22 Notes For Table 1703.1. The following shall apply to Table 1703.1:

(a) The letter "a" shall indicate that the freshwater and saltwater aquatic life criteria for ammonia are shown in Env-Wq 1703.25 through Env-Wq 1703.31.

(b) The letter "b" shall indicate that the criteria refer~~s~~ to the inorganic form only.

(c) The letter "c" shall indicate that these criteria for the protection of human health are based on carcinogenicity. The human health criteria without this footnote are based on systemic toxicity.

(d) The letter "d" shall indicate that criteria for these metals are expressed as a function of the water effect ratio (WER) as defined in 40 CFR 131.36(c). The values displayed in Table 1703.1 correspond to a WER of 1.0. To determine metals criteria for different WER's, the procedures described in the EPA publication "Interim Guidance on Determination and Use of Water-Effect Ratios for Metals" (EPA-823-B-94-001) shall be used. For copper, the "Streamlined Water-Effect Ratio procedure for Discharges of Copper" (EPA-822-R-01-005) or the Biotic Ligand Model (freshwater only) (EPA-822-R-07-001) may also be used.

(e) The letter "e" shall indicate that the following classes of compounds have 2 or more isomers and the sum of the concentrations of each isomer shall meet the appropriate aquatic life criteria:

(1) BHC;

(2) Chlorinated benzenes;

(3) Chlorinated naphthalenes;

(4) Chloroalkyl ethers;

(5) Dichlorobenzenes;

(6) Dichloroethylenes;

(7) Dichloropropanes;

(8) Dichloropropenes;

(9) Dinitrotoluenes;

(10) Haloethers;

(11) Halomethanes;

(12) Nitrophenols;

(13) Nitrosamines;

(14) PCB;

(15) Phthalate esters;

(16) Polynuclear aromatic hydrocarbons;

(17) Tetrachloroethanes; and

(18) Trichlorinated ethanes.

(f) The letter "f" shall indicate that the freshwater aquatic criteria for these metals are expressed as a function of the total hardness, as mg/l $CaCO_3$ of the surface water. The values displayed in Table 1703.1 correspond to a total hardness of 25 mg/l. To calculate aquatic life criteria for other hardness values between 25 mg/l and 400 mg/l, expressed as calcium carbonate, the equations shown in Env-Wq 1703.24 shall be used. For hardness less than 25 mg/l, a hardness of 25 mg/l shall be used in the equations. For hardness values greater than 400 mg/l, a hardness of 400 mg/l shall be used in the equations.

(g) The letter "g" shall indicate that~~, if the fresh or marine chronic criteria for total mercury exceeds 0.77 ug/l more than once in a 3-year period in the ambient water, the edible portion of aquatic species of concern shall be analyzed to determine whether the concentration of methyl mercury exceeds the FDA action level of 1.0 mg/kg~~ ***the water quality standard for methylmercury includes both the water column criteria of 0.11 nanograms/liter and the fish tissue criteria of 0.3 mg methylmercury/kg fish. The water column criteria displayed in Table 1703.1 corresponds to the fish tissue criteria of 0.3 mg methylmercury/kg fish divided by a bioaccumulation factor equal to 2,670,000***.

(h) The letter "h" shall indicate that the freshwater aquatic life criteria for pentachlorophenol are expressed as a function of pH. Values displayed in Table 1703.1 correspond to a pH value of 6.5. For other pH values, the formulas shown in Env-Wq 1703.32 shall be used.

(i) The letter "i"shall indicate that the values presented for aquatic life protection are dissolved metals and were based on values shown in Tables 1703.2. To calculate dissolved fresh water criteria for hardness dependent metals at hardness(s) greater than 25 mg/l, Table 1703.3 shall be used to calculate the total recoverable metal and Table 1703.2 shall be used to convert the total recoverable metal to a dissolved metal.

(j) The letter "j" shall indicate that these human health criteria prevent taste and odor effects in fish and other aquatic life as prohibited in Env-Wq 1703.03(c)(3).

(k) The letter "k" shall indicate that these criteria are based on EPA's 304(a) criteria in the 1980 documents listed below and were derived to be used as instantaneous maximum values, or to be applied after division by 2, to obtain a value comparable to an acute criterion derived using the 1985 Guidelines, when assessment is done using an averaging period:

(1) Aldrin/Dieldrin, document number 440/5-80-019;

(2) Chlordane, document number 440/5-80-027;

(3) DDT, document number 440/5-80-038;

(4) Endosulfan, document number 440/5-80-046;

(5) Endrin, document number 440/5-80-047;

(6) Heptachlor, document number 440/5-80-052;

(7) Hexachlorocyclohexane, document number 440/5-80-054; or

(8) Silver, document number 440/5-80-071.

(l) The letter "1" is not used to avoid confusion with the number "1".

(m) The letter "m" shall indicate that a more stringent drinking water maximum contaminant level (MCL) has been issued by EPA and the department shall use the MCL if it is the more limiting of the two criteria. The MCL for chromium is for total chromium (Cr+6 plus Cr+3).

(n) The letter "n" shall indicate that ~~this~~ these criteria are expressed as micrograms of free cyanide per liter.

(o) The letter "o"

$$Acute\ Criteria = \frac{1}{\frac{f_1}{185.9} + \frac{f_2}{12.83}}$$

shall indicate that these criteria are applied to total PCBs or the sum of all of its congener or isomer analyses.

(p) The letter "p" shall indicate that the freshwater acute criteria for selenium shall be calculated using the values for the fraction f_1 of selenite and f_2 of selenate measured in the receiving water. To calculate the acute criteria, in ug/l, the number 1 shall be divided by the sum of the fractions f_1 divided by 185.9 and f_2 divided by 12.83, as follows:

$$Acute\ Criteria = \frac{1}{\frac{f_1}{185.9} + \frac{f_2}{12.83}}$$

(q) The letter q shall indicate that these human health criteria for silver shall be for the protection of humans from argyria.

Env-Wq 1703.23 Conversion Factors For Metals.

(a) Table 1703.2 shall be used when converting total recoverable metals to dissolved metals as follows:

Dissolved Metal = Total Recoverable Metal x Conversion Factor

(b) These conversion factors shall also be used as translators to go from dissolved metals criteria in Table 1703.1 to permit limits expressed as total recoverable metals as follows:

Total Recoverable Metal = Dissolved Metal / Conversion Factor

(c) If the hardness of the receiving water is different than 25 mg/l, then Table 1703.2 shall also be used to calculate the total recoverable metal for freshwater.

(d) Table 1703.2 shall be as follows:

TABLE 1703.2
Factors to Convert Total Recoverable Metals to Dissolved Metals

	FRESHWATER Conversion Factors		MARINE Conversion Factors
	Acute	Chronic	Acute & Chronic
Arsenic	1.0	1.0	1.0

Cadmium	1.136672 - [(Ln Hardness)(0.041838)]	1.101672 - [(Ln Hardness)(0.041838)]	0.994
Chromium (+3)	0.316	0.860	-
Chromium (+6)	0.982	0.962	0.993
Copper	0.960	0.960	0.83
Lead	1.46203 - [(Ln Hardness)(0.145712)]	1.46203 - [(Ln Hardness)(0.145712)]	0.951
Mercury	0.85	0.85	0.85
Nickel	0.998	0.997	0.990
Selenium			0.998
Silver	0.85	-	0.85
Zinc	0.978	0.986	0.946

Env-Wq 1703.24 Freshwater Aquatic Life Criteria For Metals.

(a) To calculate freshwater aquatic life criteria for total recoverable metals, the following equations shall be used in conjunction with the coefficients shown in Table 1703.3:

(1) To calculate the acute criteria, in ug/l, for the metals shown Table 1703.3, the exponent "e" shall be raised to the power "x" where "x" is equal to the parenthetical expression "m_a" multiplied by the natural logarithm of the hardness and to which quotient the value "b_a" shall be added, as follows:

$$\text{Acute Criteria} = e^x \text{ where}$$
$$x = (m_a [\ln (\text{hardness})] + b_a)$$

(2) To calculate the chronic criteria, in ug/l, for the metals shown in Table 1703.3, the exponent "e" shall be raised to the power "x" where "x" is equal to the parenthetical expression "m_c" multiplied by the natural logarithm of the hardness and to which quotient the value "b_c" shall be added, as follows:

$$\text{Chronic Criteria} = e^x \text{ where}$$
$$x = (m_c [\ln (\text{hardness})] + b_c$$

TABLE 1703.3
Coefficients in Equations used to calculate Total Recoverable Aquatic Life Criteria for Metals

	m_a	b_a	m_c	b_c
Cadmium	1.0166	-3.924	0.7409	-4.719
Copper	0.9422	-1.700	0.8545	-1.702
Chromium+3	0.8190	3.7256	0.8190	.6848
Lead	1.273	-1.460	1.273	-4.705
Nickel	0.8460	2.255	0.8460	0.0584
Silver	1.72	-6.59	-------	-------
Zinc	0.8473	0.884	0.8473	0.884

Env-Wq 1703.25 Freshwater Aquatic Life Criteria For Ammonia.

(a) Subject to (b) and (c) below, Table 1703.4A shall be used to calculate freshwater acute aquatic life criteria, in milligrams of nitrogen per liter, for ammonia.

(b) The acute water quality criteria for ammonia in Table 1703.4A where salmonids may be present was calculated using the following equation, which may also be used to calculate criteria at unlisted pH values:

$$\text{Acute Criteria (Salmonids Present)} = \{ [0.275/(1+10^{7.204-pH})] + [39.0/(1+10^{pH-7.204})] \}$$

(c) The acute water quality criteria for ammonia in Table 1703.4A where salmonids are absent was calculated using the following equation, which may also be used to calculate criteria at unlisted pH values:

$$\text{Acute Criteria (Salmonids Absent)} = \{ [0.411/(1+10^{7.204-pH})] + [58.4/(1+10^{pH-7.204})] \}$$

TABLE 1703.4A
Freshwater Acute Aquatic Life Criteria For Ammonia (milligrams N /liter)

pH	Acute Criteria (Salmonids present)	Acute Criteria (Salmonids absent)
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

(d) Subject to (e) and (f) below, Tables 1703.4B and 1703.4C shall be used to calculate freshwater chronic aquatic life criteria, in milligrams of nitrogen per liter, for ammonia. The use of Table 1703.4C requires documentation acceptable to the Department of the absence of fish early life stages.

(e) The chronic water quality criteria for ammonia in Table 1703.4B where early life stages of fish

are present was calculated using the following equation, which may also be used to calculate criteria at unlisted pH and temperature values:

Chronic Criteria (Early life stages of fish Present):

$$\text{Criteria} = [0.0577 / (1+10^{7.688-pH}) + 2.487 / (1+10^{pH-7.688})] \times \text{MIN}\ [2.85, 1.45 \times 10^{0.028 \times (25-T)}]$$

Where MIN indicates the lesser of the two values separated by a comma.

(f) The chronic water quality criteria for ammonia in Table 1703.4C where early life stages of fish are absent was calculated using the following equation, which may also be used to calculate criteria at unlisted pH and temperature values:

Chronic Criteria (Early life stages of fish Absent):

$$\text{Criteria} = [0.0577 / (1+10^{7.688-pH}) + 2.487 / (1+10^{pH-7.688})] \times 1.45 \times 10^{0.028 \times (25-\text{MAX}(T, 7))}]$$

Where MAX indicates the greater of the two values separated by a comma.

TABLE 1703.4B
Freshwater Chronic Aquatic Life Criteria For Ammonia

Freshwater Chronic Aquatic Life Criteria For Ammonia, milligrams N/liter Early Life Stages of Fish Present										
	Temperature, Degrees C									
pH	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244

8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

TABLE 1703.4C
Freshwater Chronic Aquatic Life Criteria For Ammonia

Freshwater Chronic Aquatic Life Criteria For Ammonia, milligrams N/liter Early Life Stages of Fish Absent										
	Temperature, Degrees C									
pH	0-7	8	9	10	11	12	13	14	15*	16*
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71	2.54
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36	2.21
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03	1.91
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74	1.63
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48	1.39
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06	0.990
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892	0.836
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754	0.707
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641	0.601
8.9	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548	0.513
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471	0.442

*At 15 Degrees C and above the criteria for early life stages of fish absent are the same as the criteria for early life stages of fish present.

Env-Wq 1703.26 Saltwater Acute Aquatic Life Criteria for Ammonia at a Salinity of 10 g/kg. To calculate aquatic life acute saltwater criteria for ammonia, in mg of NH_3 per liter, for a salinity of 10 g/kg, the values shown in Table 1703.5 shall be used.

TABLE 1703.5
Acute Saltwater Aquatic Life Criteria (Salinity of 10 g/kg)

pH	TEMPERATURE (°C)							
	0	5	10	15	20	25	30	35
7.0	270	191	131	92	62	44	29	21

7.2	175	121	83	58	40	27	19	13
7.4	110	77	52	35	25	17	12	8.3
7.6	69	48	33	23	16	11	7.7	5.6
7.8	44	31	21	15	10	7.1	5.0	3.5
8.0	27	19	13	9.4	6.4	4.6	3.1	2.3
8.2	18	12	8.5	5.8	4.2	2.9	2.1	1.5
8.4	11	7.9	5.4	3.7	2.7	1.9	1.4	1.0
8.6	7.3	5.0	3.5	2.5	1.8	1.3	0.98	0.75
8.8	4.6	3.3	2.3	1.7	1.2	0.92	0.71	0.56
9.0	2.9	2.1	1.5	1.1	0.85	0.67	0.52	0.44

Env-Wq 1703.27 Saltwater Acute Aquatic Life Criteria for Ammonia at a Salinity of 20 g/kg. To calculate aquatic life acute saltwater criteria for ammonia, in mg of NH_3 per liter, for a salinity of 20 g/kg, the values shown in Table 1703.6 shall be used.

TABLE 1703.6
Acute Saltwater Aquatic Life Criteria (Salinity of 20 g/kg)

pH	TEMPERATURE (°C)							
	0	5	10	15	20	25	30	35
7.0	291	200	137	96	64	44	31	21
7.2	183	125	87	60	42	29	20	14
7.4	116	79	54	37	27	18	12	8.7
7.6	73	50	35	23	17	11	7.9	5.6
7.8	46	31	23	15	11	7.5	5.2	3.5
8.0	29	20	14	9.8	6.7	4.8	3.3	2.3
8.2	19	13	8.9	6.2	4.4	3.1	2.1	1.6
8.4	12	8.1	5.6	4.0	2.9	2.0	1.5	1.1
8.6	7.5	5.2	3.7	2.7	1.9	1.4	1.0	0.77
8.8	4.8	3.3	2.5	1.7	1.3	0.94	0.73	0.56
9.0	3.1	2.3	1.6	1.2	0.87	0.69	0.54	0.44

Env-Wq 1703.28 Saltwater Acute Aquatic Life Criteria for Ammonia at a Salinity of 30 g/kg. To calculate aquatic life acute saltwater criteria for ammonia, in mg of NH_3 per liter, for a salinity of 30 g/kg, the values shown in Table 1703.7 shall be used.

TABLE 1703.7
Acute Saltwater Aquatic Life Criteria (Salinity of 30 g/kg)

pH	TEMPERATURE (°C)							
	0	5	10	15	20	25	30	35
7.0	312	208	148	102	71	48	33	23
7.2	196	135	94	64	44	31	21	15
7.4	125	85	58	40	27	19	13	9.4
7.6	79	54	37	25	21	12	8.5	6.0
7.8	50	33	23	16	11	7.9	5.4	3.7
8.0	31	21	15	10	7.3	5.0	3.5	2.5
8.2	20	14	9.6	6.7	4.6	3.3	2.3	1.7
8.4	12.7	8.7	6.0	4.2	2.9	2.1	1.6	1.1

8.6	8.1	5.6	4.0	2.7	2.0	1.4	1.1	0.81
8.8	5.2	3.5	2.5	1.8	1.3	1.0	0.75	0.58
9.0	3.3	2.3	1.7	1.2	0.94	0.71	0.56	0.46

Env-Wq 1703.29 Saltwater Chronic Aquatic Life Criteria for Ammonia at a Salinity of 10 g/kg. To calculate aquatic life chronic saltwater criteria, in mg of NH_3 per liter, for ammonia, for a salinity of 10 g/kg, the values shown in Tables 1703.8 shall be used.

TABLE 1703.8
Chronic Saltwater Aquatic Life Criteria (Salinity of 10 g/kg)

pH	TEMPERATURE (°C)							
	0	5	10	15	20	25	30	35
7.0	41	29	20	14	9.4	6.6	4.4	3.1
7.2	26	18	12	8.7	5.9	4.1	2.8	2.0
7.4	17	12	7.8	5.3	3.7	2.6	1.8	1.2
7.6	10	7.2	5.0	3.4	2.4	1.7	1.2	0.84
7.8	6.6	4.7	3.1	2.2	1.5	1.1	0.75	0.53
8.0	4.1	2.9	2.0	1.40	0.97	0.69	0.47	0.34
8.2	2.7	1.8	1.3	0.87	0.62	0.44	0.31	0.23
8.4	1.7	1.2	0.81	0.56	0.41	0.29	0.21	0.16
8.6	1.1	0.75	0.53	0.37	0.27	0.20	0.15	0.11
8.8	0.69	0.50	0.34	0.25	0.18	0.14	0.11	0.08
9.0	0.44	0.31	0.23	0.17	0.13	0.10	0.08	0.07

Env-Wq 1703.30 Saltwater Chronic Aquatic Life Criteria for Ammonia at a Salinity of 20 g/kg. To calculate aquatic life chronic saltwater criteria, in mg of NH_3 per liter, for ammonia, for a salinity of 20 g/kg, the values shown in Table 1703.9 shall be used.

TABLE 1703.9
Chronic Saltwater Aquatic Life Criteria (Salinity of 20 g/kg)

pH	TEMPERATURE (°C)							
	0	5	10	15	20	25	30	35
7.0	44	30	21	14	9.7	6.6	4.7	3.1
7.2	27	19	13	9.0	6.2	4.4	3.0	2.1
7.4	18	12	8.1	5.6	4.1	2.7	1.9	1.3
7.6	11	7.5	5.3	3.4	2.5	1.7	1.2	0.84
7.8	6.9	4.7	3.4	2.3	1.6	1.1	0.78	0.53
8.0	4.4	3.0	2.1	1.5	1.0	0.72	0.50	0.34
8.2	2.8	1.9	1.3	.94	.66	.47	.31	.24
8.4	1.8	1.2	.84	.59	.44	.30	.22	.16
8.6	1.1	.78	.56	.41	.28	.20	.15	.12
8.8	.72	.50	.37	.26	.19	.14	.11	.08
9.0	.47	.34	.24	.18	.13	.10	.08	.07

Env-Wq 1703.31 Saltwater Chronic Aquatic Life Criteria for Ammonia at a Salinity of 30g/kg. To calculate aquatic life chronic saltwater criteria, in mg of NH_3 per liter, for ammonia, for a salinity of 30 g/kg, the values shown in Table 1703.10 shall be used.

TABLE 1703.10
Chronic Saltwater Aquatic Life Criteria (Salinity of 30 g/kg)

pH	TEMPERATURE (°C)							
	0	5	10	15	20	25	30	35
7.0	47	31	22	15	11	7.2	5.0	3.4
7.2	29	20	14	9.7	6.6	4.7	3.1	2.2
7.4	19	13	8.7	5.9	4.1	2.9	2.0	1.4
7.6	12	8.1	5.6	3.7	3.1	1.8	1.3	0.90
7.8	7.5	5.0	3.4	2.4	1.7	1.2	0.81	0.56
8.0	4.7	3.1	2.2	1.6	1.1	0.75	0.53	0.37
8.2	3.0	2.1	1.4	1.0	0.69	0.50	0.34	0.25
8.4	1.9	1.3	0.90	0.62	0.44	0.31	0.23	0.17
8.6	1.2	0.84	0.59	0.41	0.30	0.22	0.16	0.12
8.8	0.78	0.53	0.37	0.27	0.20	0.15	0.11	0.09
9.0	0.50	0.34	0.26	0.19	0.14	0.11	0.08	0.07

Env-Wq 1703.32 Aquatic Life Criteria for Pentachlorophenol.

(a) To calculate the freshwater aquatic life acute criteria, in ug/l, for pentachlorophenol, the exponent "e" shall be raised to the power "x" where "x" is equal to the parenthetical expression 1.005 multiplied by the pH and to which quotient the value of 4.869 shall be subtracted, as follows:

$$\text{Acute Criteria} = e^{x} \text{ where}$$
$$x = [\ 1.005\ (\text{pH}) - 4.869\ ]$$

(b) To calculate the freshwater aquatic life chronic criteria, in ug/l, for pentachlorophenol, the exponent "e" shall be raised to the power "x" where "x" is equal to the parenthetical expression 1.005 multiplied by the pH and to which quotient the value of 5.134 shall be subtracted, as follows:

$$\text{Chronic Criteria} = e^{x} \text{ where}$$
$$x = [\ 1.005\ (\text{pH}) - 5.134\ ]$$

PART Env-Wq 1704 ALTERNATIVE SITE SPECIFIC CRITERIA

Env-Wq 1704.01 Purpose. The purpose of this part is to develop a procedure for determining alternative site specific criteria in the following cases:

(a) For toxic substances not listed in Env-Wq 1703.21 through Env-Wq 1703.32;

(b) Where site specific information is available which substantiates the use of different criteria; or

(c) Where new information, not considered in the development of the criteria, is available.

Env-Wq 1704.02 Procedures.

(a) The procedure for determining alternative site specific criteria for the protection of human health shall be in accordance with EPA's draft **"**Guidance on Assessment and Control of Bioconcentratable Contaminants in Surface Waters**"** dated March 1991, and EPA's "Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health," EPA 822-B-00-004, dated

October 2000.

(b) The procedure for determining alternative site specific criteria for protection of aquatic life shall be as published in EPA's "Interim Guidance on Determination and Use of Water-Effect Ratios for Metals" dated February, 1994 and published in EPA's Water Quality Standards Handbook: Second Edition. For copper, the "Streamlined Water-Effect Ratio procedure for Discharges of Copper", EPA-822-R-01-005, or the Biotic Ligand Model (freshwater only), EPA-822-R-07-001, may also be used.

Env-Wq 1704.03 Modifications. If, based on the scientifically valid documentation presented by the applicant, the department determines that the proposed site specific criteria will protect the existing and designated uses of the waterbody, then the values obtained by those procedures for the protection of human health or aquatic life shall be formally incorporated into the state's water quality standards in subsequent amendments to these rules.

PART Env-Wq 1705 FLOW STANDARDS

Env-Wq 1705.01 Assimilative Capacity. Except for combined sewer overflows where 99 percent of the assimilative capacity shall be used to determine compliance, not less than 10 percent of the assimilative capacity of the surface water shall be held in reserve to provide for future needs.

Env-Wq 1705.02~~Low Flow Conditions~~ ***Application of Criteria in Computations for Establishing Discharge Permit Limits***

~~(a) The flow used to calculate permit limits shall be as specified in (b) through (d) below.~~

(a) The one hour average concentration for toxic substances shall not exceed acute aquatic life criteria more than once in every three years on the average. If data are not available to estimate the one hour average concentration, the one day average concentration may be used.

(b) The four day average concentration for toxic substances shall not exceed chronic aquatic life criteria more than once in every three years on the average.

(~~b~~***c***) For rivers and streams, the long-term harmonic mean flow, which is ***the number of*** daily flow measurements divided by the sum of the reciprocals of the daily flows, shall be used to develop ***discharge*** permit limits for ~~all~~ human health criteria for carcinogens.

(~~c~~***d***) For tidal waters, the low flow condition ***for computing discharge permit limits*** shall be equivalent to the conditions that result in a dilution that is exceeded 99% of the time.

(e) For each pollutant, modeling methods for establishing discharge permit limits that meet the requirements of (a) and (b) above may be either steady-state or time-dependent. A steady state modeling method is one in which model input parameters including flow and pollutant concentrations are assumed to be constant with time in the discharge and in the receiving water. A time-dependent modeling method is one in which model input parameters, including discharge flow, discharge pollutant concentrations, and receiving water flow and receiving water pollutant concentrations may vary with time.

(~~d~~***f***) For ***steady state modeling of*** rivers and streams, the 7Q10 flow shall be used to apply ***chronic*** aquatic life criteria and human health criteria for non-carcinogens.

(g) For steady state modeling of rivers and streams, the 1Q10 flow shall be used to apply acute aquatic life criteria.

PART Env-Wq 1706 SAMPLING AND ANALYSIS

Env-Wq 1706.01 Procedure. All procedures used for the purpose of collecting, preserving and analyzing samples shall be in conformance with 40 CFR Part 136 for wastewater and 40 CFR Part 141 for drinking water unless alternative procedures are specified in the surface water discharge permit.

PART Env-Wq 1707 MIXING ZONES

Env-Wq 1707.01 Designation.

(a) Mixing zones shall be prohibited in Class A waters.

(b) For Class B waters, the department shall designate a limited area or volume of the surface water as a mixing zone if the applicant provides sufficient scientifically valid documentation to allow the department to independently determine that all criteria in Env-Wq 1707.02 have been met.

Env-Wq 1707.02 Minimum Criteria. Mixing zones shall be subject to site specific criteria that, as a minimum:

(a) Meet the criteria in Env-W~~q~~ 1703.03(c)(1)~~.~~***;***

(b) Do not interfere with biological communities or populations of indigenous species;

(c) Do not result in the accumulation of pollutants in the sediments or biota;

(d) Allow a zone of passage for swimming and drifting organisms;

(e) Do not interfere with existing and designated uses of the surface water;

(f) Do not impinge upon spawning grounds and/or nursery areas of any indigenous aquatic species;

(g) Do not result in the mortality of any plants, animals, humans, or aquatic life within the mixing zone;

(h) Do not exceed the chronic toxicity value of 1.0 TUc at the mixing zone boundary; and

(i) Do not result in an overlap with another mixing zone.

Env-Wq 1707.03 Technical Standards. Mixing zones shall be established in accordance with the procedures delineated in the "Technical Support Document for Water Quality-based Toxics Control" EPA/505/2-90-001, dated March 1991.

PART Env-Wq 1708 ANTIDEGRADATION

Env-Wq 1708.01 Purpose. The purpose of these antidegradation provisions is to ensure that the following provisions of 40 CFR 131.12 are met:

(a) Existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected;

(b) For significant changes in water quality, where the quality of the surface waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife, and recreation in and on the water, that quality shall be maintained and protected unless the department finds, after full satisfaction of the intergovernmental coordination and public participation provisions that, in accordance with Env-Wq 1708.10, allowing lower water quality is necessary to accommodate important economic or social development in the area in which the surface waters are located. In allowing such degradation or lower water quality, the department shall assure water quality adequate to fully protect existing uses. Further, the department shall assure that the highest statutory and regulatory requirements shall be achieved for all new and existing point sources and that all cost effective and reasonable best management practices for nonpoint source control shall be implemented;

(c) For insignificant changes in water quality, where the quality of the surface waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife, and recreation in and on the water, that quality shall be maintained and protected. In allowing such degradation or lower water quality, the department shall assure water quality adequate to protect existing uses fully. Further, the department shall assure that the highest statutory and regulatory requirements shall be achieved for all new and existing point sources and that all cost effective and reasonable best management practices for nonpoint source control shall be implemented;

(d) Where high quality surface waters constitute an outstanding resource waters (ORW), that water quality shall be maintained and protected; and

(e) In those cases where a potential water quality impairment is associated with a thermal discharge, the antidegradation provisions shall ensure that the requirements of section 316 of the Clean Water Act are met.~~.~~

Env-Wq 1708.02 Applicability. Antidegradation shall apply to:

(a) Any proposed new or increased activity, including point source and nonpoint source discharges of pollutants, that would lower water quality or affect the existing or designated uses;

(b) Any proposed increase in loadings to a waterbody when the proposal is associated with existing activities;

(c) Any increase in flow alteration over an existing alteration; and

(d) Any hydrologic modifications, such as dam construction and water withdrawals.

Env-Wq 1708.03 Submittal of Data. The applicant shall provide all information necessary to:

(a) Identify all existing uses, including:

(1) Freshwater, estuarine, and marine aquatic life present in the affected surface waters;

(2) Other wildlife that use or are dependent on the affected surface waters;

(3) Presence of water quality and physical habitat that support, or would support, aquatic life or other animal or plant life;

(4) Presence of indigenous species and communities;

(5) Presence of a specialized use of the waterbody, such as a spawning area or as a habitat for a federally or state listed threatened or endangered species;

(6) Use of the surface waters for recreation in or on the water, such as fishing, swimming, and boating, or use of the surface waters for commercial activity; and

(7) Whether or not current-conditions or uses of the surface waters conflict with achieving and maintaining goal uses of the CWA at Section 101(a)(2) and the primary CWA objective to restore and maintain the chemical, physical, and biological integrity of the nation's surface waters;

(b) Determine the level of water quality necessary to maintain and protect those uses;

(c) Evaluate the potential impacts on existing uses due to the proposed discharge or activity by itself, and in combination with other discharges or activities presently occurring;

(d) Ensure that existing uses and the level of water quality necessary to protect those uses shall be maintained and protected.

(e) Evaluate the magnitude, duration, and upstream and downstream extent of any lowering of high quality water due to the proposed discharge or activity by itself, and in combination with other discharges or activities presently occurring;

(f) Evaluate other factors as necessary to determine whether the proposed activity would cause significant or insignificant degradation, in accordance with Env-Wq 1708.09;

(g) If the discharge or activity is determined by the department to be significant, in accordance with Env-Wq 1708.08 and Env-Wq 1708.09, determine if a proposed lowering of water quality is necessary to achieve important economic or social development in accordance with Env-Wq 1708.10; and

(h) Ensure that all water quality criteria applicable to the waterbody in question shall not be violated.

Env-Wq 1708.04 Protection of Existing Uses.

(a) This section shall apply to all surface waters.

(b) A proposed discharge or activity shall not eliminate any existing uses or the water quality needed to maintain and protect those uses.

(c) Using the information provided at Env-Wq 1708.03, the department shall determine the existing uses for the waters in question.

Env-Wq 1708.05 Protection of Water Quality in ORW.

(a) Surface waters of national forests and surface waters designated as natural under RSA 483:7-a, I, shall be considered outstanding resource waters (ORW).

(b) Water quality shall be maintained and protected in surface waters that constitute ORW, except that some limited point and nonpoint source discharges may be allowed providing that they are of limited activity which results in no more than temporary and short-term changes in water quality. "Temporary and short term" means that degradation is limited to the shortest possible time. Such activities shall not permanently degrade water quality or result at any time in water quality lower than that necessary to protect the existing and designated uses in the ORW. Such temporary and short term degradation shall only be allowed after all practical means of minimizing such degradation are implemented.

Env-Wq 1708.06 Protection of Class A Waters.

(a) In accordance with RSA 485-A:8, I, discharges of sewage or waste to Class A waters shall be prohibited.

(b) Proposed new or increased activities that the department determines do not involve the discharge of sewage or waste shall be reviewed in accordance with Env-Wq 1708.01 through Env-Wq 1708.12.

Env-Wq 1708.07 Protection of Water Quality in High Quality Waters.

(a) Subject to (b)***,*** below, high quality waters shall be maintained and protected, except that insignificant changes in water quality, as determined by the department in accordance with Env-Wq 1708.09, shall be allowed.

(b) Degradation of significant increments of water quality, as determined in accordance with Env-Wq 1708.09, in high quality waters shall be allowed only if it can be demonstrated to the department, in accordance with Env-Wq 1708.10, that allowing the water quality degradation is necessary to accommodate important economic or social development in the area in which the receiving waters are located.

(c) Economic/social benefits demonstration and alternatives analysis shall not be required for authorization of an insignificant lowering of water quality~~;~~***.*** However, in allowing a lowering of water quality, significant or insignificant, all reasonable measures to minimize degradation shall be used.

(d) If the waterbody is Class A Water, the requirements of Env-Wq 1708.06 shall also apply.

Env-Wq 1708.08 Assessing Waterbodies.

(a) The applicant shall characterize the existing water quality and determine if there is remaining assimilative capacity for each parameter in question.

(b) Existing water quality shall be calculated in accordance with Env-Wq 1705.02. Existing water quality shall be established based on point sources discharging at their allowed loadings and the highest loadings anticipated from nonpoint sources.

(c) Where flow alteration is involved, establishment of existing conditions shall be based on the existing maximum allowed water withdrawals or impoundment, diversion, or fluctuation of stream flow, as appropriate.

(d) Remaining assimilative capacity shall be evaluated by comparing existing water quality, as specified in (b) and (c)**,** above, to the state's water quality criteria.

(e) If the type and frequency of the proposed discharge or activity causes the waterbody to be impacted at flows other than those listed in Env-Wq 1705.02, the department shall require the applicant to evaluate the impact of the proposed discharge at those other flows.

(f) Subject to (h)**,** below, if the department determines, based on the information submitted, that there is no remaining assimilative capacity, no further degradation with regard to that parameter shall be allowed.

(g) Subject to (h)**,** below, if the department determines, based on the information submitted, that there is some remaining assimilative capacity, then the department shall proceed in accord with Env-Wq 1708.09.

(h) The above determinations shall take into account Env-Wq 1705.01 which requires the department to reserve no less than 10% of a surface water's assimilative capacity.

Env-Wq 1708.09 Significant or Insignificant Determination.

(a) Any discharge or activity that is projected to use 20% or more of the remaining assimilative capacity for a water quality parameter, in terms of either concentration or mass of pollutants, or volume or flow rate for water quantity, shall be considered a significant lowering of water quality. The department shall not approve such a discharge or activity unless the applicant demonstrates that the proposed lowering of water quality is necessary to achieve important economic or social development, in accordance with Env-Wq 1708.10, in the area where the waterbody is located.

(b) Subject to (d), below, those activities that cause an insignificant lowering of water quality shall not be required to demonstrate that they are necessary to provide important economic or social development.

(c) Activities under (b)**,** above shall include, but not be limited to:

(1) Short term or intermittent discharges such as hydrostatic testing of pipelines, fire pump test water, and uncontaminated stormwater discharges or site clean-up activities;

(2) Permanent discharges such as uncontaminated noncontact or uncontaminated geothermal cooling water, uncontaminated groundwater seepage, or unchlorinated or dechlorinated swimming pool water;

(3) Facilities whose nonpoint source runoff is controlled through the use of best management practices; and

(4) Any discharge or activity that is projected to use less than 20% of the remaining assimilative capacity for a water quality parameter, in terms of either concentration or mass for pollutants.

(d) If the department determines that, because of the following factors, the effect of a discharge results in a greater impact to the water quality than that normally found in insignificant discharges, it shall determine that the proposed activity or discharge is significant, regardless of the proposed consumption of the remaining assimilative capacity, and require the applicant to demonstrate, in accordance with Env-Wq

1708.10, that a lowering of water quality is necessary to achieve an important economic or social development:

(1) The magnitude, duration, and spatial extent of the proposed change in water quality;

(2) The cumulative lowering of water quality over time resulting from the proposed activity in combination with previously approved activities;

(3) The possible additive or synergistic effects of the activity in combination with existing activities;

(4) The magnitude of the mass load independent of the total assimilative capacity or change in receiving water pollutant concentration;

(5) The toxic or bioaccumulative characteristics of the pollutant(s) in question;

(6) The potential to stress sensitive biological resources such as indigenous species, rare species, and threatened or endangered species and their habitat;

(7) The potential to stress sensitive recreational uses or water supply uses; or

(8) The quality and value of the resource.

Env-Wq 1708.10 Demonstration of Economic or Social Development.

(a) Unless the department determines from documentation provided by the applicant, or other available information, that a proposed new or increased discharge or other activity would result in an insignificant impact to the existing water quality of a high quality waterbody, the department shall require that the applicant provide documentation, in accordance with the procedures delineated in "Interim Economic Guidance for Water Quality Standards" EPA- 823-B-95-002, dated March 1995, that the:

(1) Proposed project or activity will provide an important economic or social development in the area where the waterbody is located; and

(2) Lowering of water quality is necessary to accommodate the development.

(b) Where the department finds, based on the information provided in Env-Wq 1708.10(a) that a proposed project would provide an important economic or social development, it shall require that an alternatives analysis be developed, in accordance with Env-Wq 1708.10(c), to determine if it is possible to realize those benefits either without lowering water quality or with a reduced degree of degradation.

(c) To determine if the lowering of water quality is necessary to accommodate an important economic or social benefit, the department shall require the applicant to evaluate the following alternatives and submit technically and scientifically valid information describing the benefits and impacts of each alternative on water quality and the degree to which the economic or social benefits could be realized if the alternatives were implemented:

(1) Alternative methods of production or operation;

(2) Improved process controls;

(3) Water conservation practices;

(4) Wastewater minimization technologies;

(5) Non-discharging alternatives;

(6) Improved wastewater treatment facility operation;

(7) Alternative methods of treatment, including advanced treatment beyond applicable technology requirements of the Clean Water Act; and

(8) Alternative sites, and associated water quality impacts at those sites.

(d) The department shall make a preliminary determination, based on the information provided in Env-Wq 1708.10(a) and (c), to approve or deny the applicant's request.

(e) If the department approves the applicant's request, the department shall provide the opportunity for public comment on its preliminary decision in accordance with Env-Wq 1708.11.

Env-Wq 1708.11 Public Participation and Intergovernmental Coordination.

(a) The department shall provide the opportunity for public comment on preliminary decisions to allow any lowering of water quality.

(b) The department shall issue a written notice to the public, the municipality in which the activity is located or proposed to be located and all potentially affected municipalities. The notice shall invite written comments to be submitted to the department and shall provide an opportunity to request a public hearing. For activities related to state surface water discharge permits, this public notice shall be a part of the normal public participation procedures associated with the issuance of the permit.

(c) The notice shall be published in a newspaper of general circulation in the municipality where the proposed activity will occur and shall include the following information:

(1) A description of the proposed activity;

(2) A description of the surface waters involved and their use classification;

(3) A statement of the department's antidegradation provisions;

(4) A determination that existing uses and necessary water quality will be maintained and protected;

(5) A summary of the expected impacts on high quality waters;

(6) A determination that where a lowering of water quality is allowed, all applicable water quality criteria shall be met, designated uses protected, and any higher water quality achievable by the most stringent applicable technology-based requirements shall be maintained;

(7) A discussion of any other information that is relevant to how the activity complies or does not comply with these provisions;

(8) The summary of the important economic or social development, if applicable;

(9) A summary of the alternatives analysis and a finding that the lowering of water quality is necessary; and

(10) The name, address, and telephone number of the person in the department where all written comments or requests for public hearing can be sent.

(d) To fulfill intergovernmental coordination, the department shall submit a copy of the public notice to the following agencies and requesting comments:

(1) NH department of resources and economic development;

(2) NH department of health and human services;

(3) NH fish and game department;

(4) NH office of energy and planning;

(5) US EPA Region I;

(6) US Army Corps of Engineers;

(7) US Fish and Wildlife Service;

(8) National Marine Fisheries Service;

(9) Local river advisory committees, if applicable;

(10) National Park Service; and

(11) Natural Resources Conservation Service.

(e) The department shall respond to all comments received as a result of public participation and intergovernmental coordination. If a request to hold a public hearing is received, the department shall hold a public hearing~~,~~ in accordance with the provisions of Env-C 200 that apply to non-adjudicative proceedings.

(f) Following this public participation process, the department shall, based on any further information submitted during the public hearing, make a final decision to allow or deny the proposed impact on water quality. If the application is denied, the applicant may revise the submittal to decrease or eliminate the projected impact to high quality waters~~,~~ and resubmit the application for consideration under the full review process.

Env-Wq 1708.12 Transfer of Water ~~to Public Water Supplies~~. ~~The transfer of waters from rivers, streams, lakes, or ponds to waters used as a public water supply shall be subject to~~ ***When water is transferred from one waterbody to another,*** the following conditions ***shall apply***:

~~(a) Both the source water in the area of the withdrawal and the receiving water shall be acceptable for water supply uses after treatment;~~

(a) ***Transferred water may be treated to comply with the provisions of this section***

(b) The chemical***,*** ~~and~~ physical ***and biological*** ~~water quality parameters~~ ***characteristics*** of the ~~source~~ ***transferred*** water shall ~~be at least equal to the water quality of the receiving water~~ ***not adversely affect aquatic life or other designated uses in the receiving water;***

(c) The transferred water shall not contain species of aquatic life that would adversely affect the species of aquatic life in the receiving water;

~~(c) The biological characteristics of the source water shall be compatible with those of the receiving water and shall not contain species of aquatic life that would adversely affect the species of aquatic life in the receiving water,~~

(d) Withdrawal of water shall not adversely affect the physical or chemical characteristics, the aquatic life or other designated uses in the source water; and

~~(d)~~ ***(e)*** The transfer and withdrawal ***shall both be considered significant under Env-Wq 1708.09, for the purposes of antidegradation review.*** ~~comply with the antidegradation provisions of this part.~~

PART Env-Wq 1709 REMOVAL OF DESIGNATED USES

Env-Wq 1709.01 Requirements.

(a) Before requesting that the state legislature remove a designated use, the department shall conduct a use attainability analysis in accord with 40 CFR Part 131.

(b) Based on the information provided in (a), above, the department may propose to the state legislature, after public notice and comment, that a designated use which is not an existing use be removed or that subcategories of a use be established when attaining the designated use is not feasible because:

(1) Naturally occurring substance concentrations prevent the attainment of the use;

(2) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions can be compensated by the discharge of sufficient volume of effluent discharges without violating state water conservation requirements to enable uses to be met;

(3) Human-caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place;

(4) Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use;

(5) Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, unrelated to water quality, preclude

attainment of aquatic life protection uses; or

(6) Controls more stringent than those required by sections 301(b) and 306 of the Clean Water Act would result in substantial and widespread negative economic and social impact, as determined using the provisions delineated in "Interim Economic Guidance for Water Quality Standards", EPA-823-B-95-002, dated March, 1995.

APPENDIX

Rule Section(s)	State Statute or Federal Statute or Regulation Implemented
Env-Wq 1701	RSA 485-A:6, I; RSA 485-A:8, VI; Clean Water Act, 33 U.S.C. 1251 *et seq*
Env-Wq 1702	RSA 485-A:6, I; RSA 485-A:8, VI; Clean Water Act, 33 U.S.C. 1251 *et seq*
Env-Wq 1703	RSA 485-A:6, I; RSA 485-A:8, I, II and III;RSA 485-A:8, VI; Clean Water Act, 33 U.S.C. 1251 *et seq*
Env-Wq 1704	RSA 485-A:6, I; RSA 485-A:8, VI; Clean Water Act, 33 U.S.C. 1251 *et seq*
Env-Wq 1705	RSA 485-A:6, I; RSA 485-A:6, VII; RSA 485-A:8, VI; RSA 485-A:13, I(a); Clean Water Act, 33 U.S.C. 1251 *et seq*
Env-Wq 1706	RSA 485-A:6, I; RSA 485-A:8, VI; Clean Water Act, 33 U.S.C. 1251 *et seq*
Env-Wq 1707	RSA 485-A:6, I; RSA 485-A:8, VI; Clean Water Act, 33 U.S.C. 1251 *et seq*
Env-Wq 1708	RSA 485-A:6, I; RSA 485-A:8, VI; Clean Water Act, 33 U.S.C. 1251 *et seq*
Env-Wq 1709	RSA 485-A:6, I; RSA 485-A:8, VI; Clean Water Act, 33 U.S.C. 1251 *et seq*